Indiana Department of Natural Resources
Division of Forestry

DRAFT

Resource Management Guide

Clark State Forest **Compartment: 1 Tract: 08**
Christine Martin **Date 6/18/12**

Acres Commercial forest: 119.5
Acres Noncommercial Forest: 0
Acres Permanent Openings: 0
Acres Other: 0

Acres Total: 119.5

Average Site Index: 80

Basal Area ≥ 14 inches DBH: 52.9
Basal Area < 14 inches DBH: 44.9
Basal Area Culls: 2.6
Total Basal Area: 100.3

Number Trees/Acre: 256

Stocking Level : Fully Stocked 95%

Species	Harvest	Leave	Total
Mockernut Hickory		1210	1210
American Sycamore		1310	1310
White Ash	2310		2310
Post Oak		2510	2510
Sweetgum		4410	4410
American Beech	5650		5650
Northern Red Oak	2780	3720	6500
Red Maple	13770	1680	15450
Scarlet Oak	3860	15460	19320
Sugar Maple	9520	10910	20430
Yellow Poplar		29820	29820
Virginia Pine	29350	4080	33430
Pignut Hickory	6220	27920	34140
Black Oak	13830	55990	69820
White Oak	16530	90400	106930
Chestnut Oak	40600	119070	159670
Total	**144420**	**368490**	**512910**

Location

This tract is located in Washington County Indiana, T3N R6E S31.

General Description

This tract consists of three major stand types' Virginia pine, oak-hickory, and mixed hardwoods. The oak hickory is the largest stand that comprises 93.2 acres. The Virginia pine stand is 19.3 acres. The mixed hardwoods stand is the third stand type with 7 acres.

History

In 1979 this tract of land was acquired from the Nature conservancy. The last management plan was written in 1991. The plan indicates that there is 1,202 board feet to the acre. Today it is showing that there is 4,440 board feet to the acre.

Landscape Context

The majority of the landscape is forested. There are some houses but they are seated inside the forested area. There is very little field or crop usage.

Topography, Geology, and Hydrology

There are many minor drainages located within this tract. The main drainage flows to the west of this tract which flows into Elk creek.

There is one larger pond located to the west of this tract. This pond outflows onto the state.

This tract is mainly made up of a west- south west facing slope.

Soils

Burnside silt loam (Bu)

This deep well developed soil is found on flood plains which is can be flooded for short periods in the spring. This profile averages from 40-60 inches deep. The top soil is 9 inches of silt loam. The subsoil consist of a loam grading to a channery loam. The underlying material is a channery loam and beneath that is sandstone bedrock. The soil is moderately permeable and the runoff is slow. The available water capacity is moderate.
Degree Slope : 0-2%
Site index: 95-YEP
Growth range potential: 588- YEP
Woodland suitability group: 7A
Management considerations: flooding

Gilpin-Berks loam (GnF)

This soils is a moderately steep, moderately deep well drained soil. These soil are mainly found on side slopes in the uplands. This complex is approximately 50% Gilpin and 35% berks soil. This soil is moderately permeable and the available water capacity is low. The runoff is very rapid.
Degree slope: 18-50
Site index: 80
Growth range potential: 372
Management concerns: flooding

Cincinnati Silt Loam (ChB)
The Cincinnati soils consist of very deep, well drained soils that are moderately deep to a fragipan. These soils formed in loess. In the typical profile the A layer is a plow layer that is 10inches deep. This layer is usually a silt loam. The B layer starts with a silt loam then gradually grades to more clay ending with a clay loam. At 28 inches below the surface manganese and iron concretions start to form in the profile. The fragipan occurs at 53 inches below the surface. The C layer is found at 58inches below the surface. The mean annual precipitation is 40 inches and the mean annual air temperature is 54 degrees.
Degree Slope: 1-18%
Woodland suitability group: 2e
Site Index: 80
Growth Range Potential: 342

Cuba (Cu, Cw)
The Cuba series is found on flood plains and natural levees. These soils are well drained and formed is acid silty alluvium. In the typical profile the soils are only 60 inches deep. They start with a plow player and the substratum has a weak structure. The C layer starts at 47 inches. The mean annual temperature is 52 degrees and the mean annual precipitation is 42 inches.
Degree Slope: 0-3%
Management concerns: frequently flooded

Gilpin Silt Loam (GlD2, GlD3, GlE2, GpF) Moderately deep, strongly sloping to steep, well-drained soils. Surface layer is very dark grayish-brown silt loam about 3 inches thick. Subsurface layer is pale brown silt loam about 9 inches thick. Subsoil is about 17 inches thick. Depth to hard sandstone and shale bedrock is about 29 inches. Moderate in organic matter. Available water capacity is low and permeability is moderate. Runoff is rapid to very rapid.
Degree Slope: 12-30 %
Woodland Suitability Group: 3o10 or 3r12
Growth range potential (Upland oaks): 185-260 bd.ft./acre/year
Site Index: 70-80
Management Concerns: Runoff and erosion

Stendal (Sf, So)
This soil consists of deep moderately permeable soils found on flood plains. These soils are formed in acid alluvium. These soils are frequently flooded. The surface horizon is

made up of a silt loam plow layer. This soil has not sub soil as it is mixed in the plow layer. The substratum is a silt loam and is very strongly acidic.
Degree Slope:0-2
Site Index: 90
Growth Range Potential:432

Wellston Silt Loam (WhfC2, WhfD2, WhfD3)

The Wellston series consists of deep, or very deep, well drained soils formed in silty material from loess and from fine-grained sandstone or siltstone and with bedrock at depths of 40 to 72 inches. These soils have moderate permeability. The surface horizon is a silt loam which is 2 inches thick. The subsurface horizon is a silt loam about 8 inches thick. The first portion of the subsoil consists of 11 inches of a silt loam, the next portion consist of 4 inches of a silty clay loam. The last portion of the subsoil is one inch of a clay. The stratum is 9 inches of loam. The bedrock which is at 45 inches form the surface

is an acid fine-grained sandstone. Mean annual precipitation is about 40 inches, and mean annual temperature is about 53 degrees F. Well drained. Runoff is medium to rapid.
Degree Slope: 0-50%
Woodland suitability group: 3o10
Site Index: 80
Growth Range potential: 342
Management Concerns: runoff and erosion

Access

The access to this tract is going to need a lot of work. The main gate is located off of smith road. There is an old road that runs through this tract. The old road bed stops shortly after crossing into tract 6300107. This old roadbed is sunken and is in need of major repair. There will need to be some reroutes and some more water diversion devises placed on this road in order to make it navigable. There is some gravel to the entrance of this old roadbed, but quickly disappears.

Boundary

This tract is bordered on all sides by private boundary line except the south side. The south boundary line is Clark State forest Tracts. The north boundary is smith road. The west boundary has a driveway that is close to the line but stops a quarter mile down the line a fence picks up running south where the driveway leaves off. The North West corner has a pipe along the road that is assumed the corner for the tract. The northern most east side (along smith Road) has a possible encroachment from the neighbor. The neighbor has trash strewn about in his yard and has old cars and junk located in his woods. The line is not clear but according to the GPS his mowed lawn is on us. At the south west corner of this line there is T post. These T posts run to the east marking this line. At the end of this line there is a corner marker. Here the line turns south and there is

a short distance then there is another corner. These corners were surveyed by Bob Isgrigg. There are no other corners or evidence to dictate where the line is located on the south east side.

Wildlife

This tract is typical of Southern Indiana. There were found deer, squirrels, chipmunks, song birds, and some birds of prey, while inventorying.

A Natural Heritage Database review was obtained for this tract. If rare, threatened or endangered species were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

The neighbor's dogs also wander about in the northern portion of this tract.

Indiana Bat

Timber harvest activities may have both positive and negative effects on the Indiana bat. While undetected but occupied roost trees could be cut during spring, summer or fall, the probability of disturbance or direct injury or death to bats is extremely small. Timber harvest could create conditions that are beneficial to Indiana bats. Roads and/or skid trails provide improved canopy foraging conditions by reducing clutter. Roosting habitat could also be improved by reducing clutter around roost trees. Edges of log landings and regeneration openings could provide roost trees with improved solar exposure, thus improving microclimate/thermal conditions for roosting areas. This would improve reproductive success and fitness, contributing to local population stability or increase. In cases of maternity trees this could provide conditions that increase growth and activity rates of young bats, leading to reduced time for parental care.

Suitable roost trees such as large diameter snags or live trees with loose or exfoliating bark will be retained in sufficient numbers to provide continuing roosting habitat for the Indiana bat.

In this inventory it is shown that the number of large legacy trees and snags have been found not to meet the maintenance level for the Indiana bat. This tract has been found to have mainly small sawtimber (18 inch diameter – 14 inch diameter) and pole timber (8in-13 inch diameter). Without large trees to begin with it is near impossible to have many snags that are over 20 inches in diameter. One of the objectives while marking the stand can be to limit the number of large trees harvested, to increase the habitat for the Indiana bat.

Recreation

The Knobstone Trail traverses through this tract; therefore hiking is a main recreational use. There are also a lot of deer stands and turkey blinds that have been found while inventorying. This tract can also be used for hunting and foraging for edible plants.

There is a very well used illegal 4 wheeling trail found in this tract. This trail leads to private property where they have a gate to get through their fence. This gate looks well used as does the trail leading to it.

Cultural

Cultural resources may be present on this tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Summary Tract Silvicultural Prescription and Proposed Activities

Oak-Hickory

There are approximately 93 acres in this stand of timber. The main species are chestnut oak and white oak. The basal area per square foot is 97, which means there is approximately 24 square feet of basal area that can be removed from this stand. There are approximately 434,670 Doyle board feet found in this stand and 117,990 of that is harvestable which is roughly a quarter of the total volume.

This stand consists of small sawtimber to pole size timber. Some of the small sawtimber found in this tract seems to be trees that have been stunted in their growth and have stopped growing. This means the trees are vulnerable for a broad array of disease and insect attacks. The higher altitude the worse the quality of timber is, and the more defects are found in the trees. The west end of this tract has steep topography. In these areas they may be able to log on the ridgetops, if there is a way found off the ridges without tearing up the drainages. A side slope skid would be a good option for some of the steep terrain.

There are also found to be many poor quality trees intermixed with the good quality trees. The poor quality trees need to be thinned out in order to promote the growth of the good quality trees before they become stunted. Some places found on this stand type is a small pocket of poor quality trees. These trees should be started over from the beginning to get a better genetic strain of trees growing.

The regeneration is mainly red maple and American beech. There is not much sunlight hitting the forest floor to support oak regeneration. With the shade tolerant species in the understory it exacerbates the oak regeneration problem. There should be some large openings created with the harvest to increase the sunlight hitting the forest floor. There will need to be follow-up timber stand improvement to get rid of the maples and beeches growing in the newly created opening that will be shading out the oak regeneration.

This stand can use an improvement harvest. The poor quality and stunted trees should be thinned out to make room for the young stand of trees to take over. These young trees will improve stand vigor and overall health. There also needs to be some larger openings in order to facilitate oak regeneration. These openings should be created in areas with large groups of stunted or defected trees are found. The areas found that had groups of poor quality trees is a good candidate for a group selection to facilitate oak regeneration.

Virginia Pine

There are approximately 19 acres in this stand type. This stand has a current basal area of 130. There is a little over 3,000 board feet to the acre located within this stand of timber.

There are two separate stands of Virginia pine located throughout this tract. Both of the stands are very similar in composition. The stands are small poles sized Virginia pine trees. These pines have been slowly blowing over for years.

These pines need to be removed in the next harvest to improve stand health and vigour. There is a lot of shade tolerant species growing in the understory of these pine stands. Once the pine stand is removed and the sunlight can reach the forest floor that should help facilitate some oak regeneration.

Mixed Hardwood

This stand is mainly found in the drainage. There are approximately 7 acres found in this stand type. There is 79 square feet of basal area in this stand. There is approximately 5 square feet of basal area that can be removed in the harvest. There is 24,670 total Doyle board feet in this stand type. There is 2,180 Doyle board feet that is harvestable.

The main tree species ate yellow poplar and black oak. There were mainly poles found within this stand type. American beech is the primary regeneration in this stand. This stand could withstand a light harvest to harvest the dying and defected trees found within this stand.

The drainage which this stand follows is an intermittent stream. In order to comply with the riparian management zone there needs to be a 25ft, buffer in order to skid in the drainage. Some of the places in this drainage can get narrow therefore that will need to be taken into account when planning the skid routes.

Proposed Activities Listing

2013- Road work
2014-Timber Sale
2015- Timber stand improvement
2034- Reevaluate and re inventory

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